REMARKS/ARGUMENTS

Claims 1-21 were pending at the time of the mailing of the outstanding Office Action. Claim 9 has been withdrawn from consideration. By this amendment, claims 13 and 16 have been cancelled without prejudice or disclaimer as to the subject matter contained therein. Claims 1, 7, 9, 10 and 21 have been amended. New claim 22 has been added.

In the Office Action of 22 January 2009, the Examiner rejected claims 7, 10, 11, 17 and 21 under 35 U.S.C. § 112, second paragraph, as being indefinite for use of the term "gradient" without indicating the type of gradient. Under 35 U.S.C. § 102(b), claims 1-8 and 10-21 were rejected as anticipated by JP 55132500.

Claims 7, 10 and 21 have been amended to eliminate a recitation of a "gradient" in these claims. For example, claim 7 now recites, "The direct heating tube according to claim 1, wherein a change in a wall thickness of the first heated tube and/or the second heated tube is provided along the length of the first and/or second heated tubes." Accordingly, the Applicant maintains that claims 7, 10, 11, 17 and 21 satisfy the requirements of 35 U.S.C. § 112, second paragraph. Withdrawal of the rejection of these claims under 35 U.S.C. § 112, second paragraph is respectfully requested.

To anticipate a claim, a reference must teach all elements of the claim (MPEP § 2131). JP 55132500 provides a transport pipe for crude oil, not a direct heating pipe for chromatography. The differences in purpose give rise to differences in structure. The claimed invention provides a direct heating tube which has a sufficient heating rate and a sufficient cooling rate, and has no cold spots therein, making it possible to ensure a

uniform temperature distribution in the whole or part thereof or a temperature distribution having a desired temperature gradient, and making it possible to keep the temperature of a fluid which is caused to flow through the tube constant or to give a desired change to the temperature of the fluid. Also, the present invention provides a direct heating tube which does not exert an adverse influence on devices near the tube, such as a detector or an oven, even by heating the tube. On the other hand, subject and purpose of JP 55132500 is to eliminate cable wiring and prevent electric trouble in an oil pipeline. While accurate control and consistency of temperature in chromatography is provided by the claimed invention, JP55132500 merely provides for the heating of large quantities of a single type of liquid (oil). Accurate control and consistency of the temperature of the liquid being conveyed is not an aim of JP 55132500.

While claim 1 recites that the first and second tubes are connected, in JP 55132500 steel transport pipe 1 and steel pipe covering 2 are not indicated to be connected. Steel transport pipe 1 and steel pipe covering 2 are apparently only electrically connected by lead wires 5, 6 and by wire 3. Steel transport pipe 1 and steel pipe covering 2 are not indicated to be fixed to each other. Therefore, JP 55132500 does not teach a connection of a first heated tube and a second heated tube as claimed. Accordingly, withdrawal of the rejection of claims 1-8 and 10-12, 14, 15, and 17-21 under 35 U.S.C. § 102(b) is respectfully requested.

Claims 22 and 23 have been added. These new claims recite additional distinctions over JP 55132500. Claim 22 recites that the first and second heated tubes are connected by a flange, forming a double tube configuration in the region of the second heated tube. Support for this new claim may be found in the specification in Fig. 2 and in

the paragraph beginning on page 10, line 17 and continuing to page 11, line 6 (paragraph 0036 of Pub. No. 2007/0107675). As mentioned above, JP 55132500 does not indicate that steel transport pipe 1 and steel pipe covering 2 are connected, except by an electrical connection. No flange attaching these structures is recited in the English abstract of this document, nor is such a structure indicated in the exemplary figure accompanying the abstract.

Claim 23 recites that the second heated tube concentrically surrounds the first heated tube and establishes a void between the first and second heated tubes. Support for this new claim may be found in the specification in the paragraph beginning on page 15, line 8 and continuing to page 16, line 2 (paragraph 0043 of Pub. No. 2007/0107675). On the other hand, in JP55132500, steel transport pipe 1 is shown as being immediately surrounded by a material 7, preventing the formation of a void between steel transport pipe 1 and steel pipe covering 2. It would also stand to reason that the presence of material 7 will prevent the heat of steel pipe covering 2 from contributing to the consistent regulation of temperature and elimination of temperature differences that is one aspect of the claimed invention. Therefore, claims 22 and 23 also patentably distinguish over JP 55132500.

In the Office Action of January 22, 2009, U.S. Pat. No. 5,006,689 to Kurachi et al., U.S. Pat. No. 4,974,551 to Nelson and U.S. Pat. No. 4,661,684 to Sellers were cited as being pertinent to the disclosure. However, Kurachi provides a heater 24 which heats pump body 27 to heat water contained in pump body 27. Kurachi does not heat first guide pipe 36. Nelson provides a water heater in which inner water tank 21 and outer shell 22 are not heated by heating element 42. Instead, heating element 42 directly heat water in

inner water tank 21. Similarly, Sellers provides an asphalt heating system in which a heating element 70 is provided in inner tube 61. Heating element 70 heats inner tube 61 and inner tube 61 heats the material present between inner tube 61 and outer pipe 63. Therefore, neither Kurachi nor Nelson nor Sellers teaches or suggests a direct heating tube containing a first and a second heated tube as claimed.

The outstanding Office action was electronically transmitted on 22 January 2008. The Examiner set a shortened statutory period for reply of 3 months from the notification date. Therefore, a petition for a three month extension of time is hereby made with this response. The Commissioner is authorized to charge any fee required to be paid with the filing of this paper or to credit any overpayment to Deposit Account 15-0450.

Respectfully submitted,

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